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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
COLLINS, CYNTHIA E	
ART UNIT	**PAPER NUMBER**
1638	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/890,782	MEMELINK ET AL.	
	Examiner	Art Unit	
	Cynthia Collins	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 July 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *89-103* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *99-103* is/are allowed.

6)☒ Claim(s) *89-95,97 and 98* is/are rejected.

7)☒ Claim(s) *96* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's amendment filed on July 5, 2007 has been entered.

Claims 1-88 are cancelled.

Claims 89-103 are new.

Claims 89-103 are pending.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

All previous objections and rejections not set forth below have been withdrawn.

Claim Objections

Claims 89, 91, 95 and 98-103are objected to because of the following informalities: "Catharanthus" is misspelled as "Cantharanthus". Appropriate correction is required.

Claim 97 is objected to because of the following informalities: "plant" is misspelled as "plan". Appropriate correction is required.

Claim Rejections - 35 USC § 112

Claims 89-95 and 97-98 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, for the reasons of record.

Applicants' arguments filed July 5, 2007 have been fully considered but they are not persuasive.

Applicants point out that claims 89, 95, and 98, each refer to the transcription factors in one of three ways: i), ii), and iii). The transcription factors recited in i) and ii) are exemplified in the specification (e.g., Example ii) and illustrated in Figure13a. Item iii) recites a transcription factor having an amino acid sequence with at least 90% amino acid sequence identity with an amino acid sequence as set forth in i) or ii), wherein the transcription factor enhances the biosynthesis in *Cantharanthus roseus* cells of at least one of tryptophane or tryptamine by at least 10%, when stably expressed in said C. *roseus* cells from a genetic construct comprising a sequence coding for the transcription factor operably linked to a plant promoter.

Applicants maintain that the claims thus refer to structure in that they recite a transcription factor comprising an amino acid sequence relating to SEQ ID NO: 6, and Applicants point out that the percent identity of the claims is supported at pg. 13, lines 11-16. Applicants further point to Figure 13a, which shows that these sequences each contain a well characterized AP2 domain. Applicants also point out that the recitation iii) also refers to advancing the biosynthesis of tryptophane or tryptamine in *Cantharanthus roseus* cells, and that the synthesis of these materials may be determined by a simple assay that is described in Examples 12 and 13 in the specification. Applicants thus maintain that the sequences are described in terms of structure and function, and that sequences that do not satisfy the structural and functional recitations fall outside the scope of the claim. (reply pages 11-12).

The rejection is maintained because transcription factors having an amino acid sequence with at least 90% amino acid sequence identity with an amino acid sequence as set forth in i) or

ii), wherein the transcription factor enhances the biosynthesis in *Catharanthus roseus* cells of at least one of tryptophane or tryptamine by at least 10%, when stably expressed in said C. *roseus* cells from a genetic construct comprising a sequence coding for the transcription factor operably linked to a plant promoter, and the nucleic acid sequences that encode them, are not described.

With respect to the recitation that the transcription factor comprises an amino acid sequence relating to SEQ ID NO: 6, the Examiner maintains that the disclosure of SEQ ID NO: 6 by itself is not sufficient to adequately describe the claimed genus, because neither the specification nor the prior art describe what structural features (specific amino acids) of SEQ ID NO:6 are retained by variants of SEQ ID NO:6 that function as claimed.

With respect to page 13, lines 11-16, the Examiner maintains that while the specification at page 13 states that the AP2 domain(s) present in the transcription factor(s) used in the invention is/are preferably selected from amino acid sequences having at least 90% homology to the AP2 domain of SEQ ID NO:6, the specification at page 13 does not describe the structure (primary amino acid sequence) of any transcription factor having an amino acid sequence with at least 90% amino acid sequence identity with an amino acid sequence as set forth in i) or ii), wherein the transcription factor enhances the biosynthesis in *Catharanthus roseus* cells of at least one of tryptophane or tryptamine by at least 10%, when stably expressed in said C. *roseus* cells from a genetic construct comprising a sequence coding for the transcription factor operably linked to a plant promoter, or the structure (primary nucleotide sequence) of any nucleic acid sequence that encodes such a transcription factor.

With respect to Figure 13a, the Examiner maintains that the disclosure that SEQ ID NO:6 comprises an AP2 domain does not adequately describe the claimed genus, because the mere

presence of an AP2 domain in a transcription factor is not known or disclosed as being specifically correlated with the required function (enhances the biosynthesis in *Cantharanthus roseus* cells of at least one of tryptophane or tryptamine by at least 10%, when stably expressed in said C. *roseus* cells).

With respect to Applicants' assertion that the biosynthesis of tryptophane or tryptamine in *Cantharanthus roseus* cells may be determined by a simple assay that is described in Examples 12 and 13 in the specification, the Examiner maintains that such a disclosure does not describe the structure (primary amino acid sequence) of the sequences in the *Cantharanthus roseus* cells subjected to such an assay.

With respect to sequences that do not satisfy the structural and functional recitations that fall outside the scope of the claim, the Examiner maintains that while those of skill in the art can visualize sequences that do or do not satisfy the structural limitations of the claims on the basis of what is already known in the art, those of skill in the art cannot visualize sequences that satisfy both the claims' structural and functional limitations, because neither the specification nor the prior art provide a descriptive basis for such a determination.

Applicants also maintain that they believe *In* re *Marzocchi to be* relevant in that it is a well-founded principle that a description as filed is presumed to be adequate, unless or until sufficient evidence or reasoning to the contrary has been presented by the Examiner to rebut the presumption. In this regard Applicants also point to the MPEP at 2163.04 as supporting this position (reply page 12).

With respect to *In re Marzocchi*, the Examiner reiterates that the holding in *In re Marzocchi* is inapposite to the outstanding rejection, which was made under 35 USC 112, first paragraph, for a lack of written description. The holding that Applicants make reference to from *In re Marzocchi* was directed to a rejection which was made under 35 USC 112, first paragraph, for a lack of enablement, which is a separate and distinct section of the statute. Further, an enabling disclosure does not necessarily support the description of a genus of sequences that is not known in the art or disclosed in the specification. See *University of California v. Eli Lilly*, 119 F.3d 1559, 43 USPQ 2d 1398 (Fed. Cir. 1997), which discusses the description of a claimed human cDNA sequence based on the disclosure of a rat cDNA sequence and a method for obtaining the human cDNA sequence:

> The patent describes a method of obtaining this cDNA by means of a constructive example, Example 6. This example, however, provides only a general method for obtaining the human cDNA (it incorporates by reference the method used to obtain the rat cDNA) along with the amino acid sequences of human insulin A and B chains. Whether or not it provides an enabling disclosure, it does not provide a written description of the cDNA encoding human insulin, which is necessary to provide a written description of the subject matter of claim 5. The name cDNA is not itself a written description of that DNA; it conveys no distinguishing information concerning its identity. While the example provides a process for obtaining human insulin-encoding cDNA, there is no further information in the patent pertaining to that cDNA's relevant structural or physical characteristics; in other words, it thus does not describe human insulin cDNA. Describing a method of preparing a cDNA or even describing the protein that the cDNA encodes, as the example does, does not necessarily describe the cDNA itself. (*Lilly*, 43 USPQ2d at 1405)

Claims 89-95 and 97-98 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a nucleotide sequence encoding SEQ ID NO:6, for nucleotide sequences encoding the truncations of SEQ ID NO:6 that are disclosed as Δ5ORCA3

and Δ3ORCA3, and for methods of transforming *Catharanthus* cells with said nucleotide sequences operably linked to a promoter in a sense orientation, does not reasonably provide enablement for nucleotide sequences encoding variants of SEQ ID NO:6. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims, for the reasons of record.

Applicant's arguments filed July 5, 2007 have been fully considered but they are not persuasive.

Applicants point out that independent claims 89, 95, and 98 each refer to the transcription factors in one of three ways: i), ii), and iii), and that the transcription factors recited in i) and ii) are exemplified in the specification. Applicants also point out that item iii) recites a transcription factor having an amino acid sequence with at least 90% amino acid sequence identity with an amino acid sequence as set forth in i) or ii), wherein the transcription factor enhances the biosynthesis in *Cantharanthus roseus* cells of at least one of tryptophane or tryptamine by at least 10%, when stably expressed in said C. *roseus* cells from a genetic construct comprising a sequence coding for the transcription factor operably linked to a plant promoter. In this regard, Applicants maintain that it is believed that one skilled in the art would have been guided by sufficient structural and functional characteristics so as to be able to practice the claimed invention. (reply pages 13-14)

The rejection is maintained because the effect of expressing nucleotide sequences encoding protein variants is unpredictable, as the functional effect of altering the amino acid sequence of an Ap2-domain transcription factor is unpredictable. In the instant case the

specification does not provide sufficient guidance with respect to how to make variants of SEQ ID NO:6 wherein the variants function as desired upon expression in a cell transformed therewith. Absent such guidance one skilled in the art would have design numerous different variants of SEQ ID NO:6, and test the effect of expressing each one in *Catharanthus* cells transformed therewith, in order to determine which variants, if any, function as claimed. Such a trial and error to practicing the claimed invention would constitute undue experimentation.

Double Patenting

Applicant is advised that should claim 91 be found allowable, claim 98 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Allowable Subject Matter

Claim 96 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

Claims 99-103 are allowed.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Remarks

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Collins whose telephone number is (571) 272-0794. The examiner can normally be reached on Monday-Friday 8:45 AM -5:15 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cynthia Collins
Primary Examiner
Art Unit 1638

CC

Cynthia Collins
9/29/07